PHOTONIC CRYSTAL THIN FILM INTEGRATED CIRCUITS

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Photonic Crystals, the electromagnetic analog of semiconductor crystals, have stirred the imagination toward photonic integrated circuits. At the same time, the build-out of the tele-communications infrastructure is creating a demand for large volumes of optical communications components and sub-systems. Integration at the tiniest scale of photonic crystals allows the largest number of components to be produced from a single wafer, reducing cost, and allowing considerable optical complexity.

There have been a series of practical difficulties standing in the way of building practical microphotonic circuits, that are gradually being solved; including, the input/output coupling efficiency problem, the nano-fabrication accuracy problem, the active device issues, electrical modulation schemes, device design software and simulation. Some of these problems are already solve, and we can project solutions to the others over the next few years.